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expansion strut pairs connected at a distal end;

B4
a first connecting strut including a first connecting strut proximal section, a first connecting strut distal section and a first connecting strut intermediate section, the first connecting strut proximal section being coupled to the distal end of the first expansion strut pair in the first expansion column and the first connecting strut distal section being coupled to the proximal end of the second expansion strut pair of the second expansion column, a plurality of the first connecting strut forming a first connecting strut column that couples the first expansion column to the second expansion column,

the first connecting strut being non-parallel to the first expansion strut of the first expansion pair and the second expansion strut of the first expansion strut pair, the proximal section coupled to the distal end of the first expansion strut pair at a location circumferentially offset from the location at which the distal section is coupled to the proximal end of the second expansion strut pair.

REMARKS

This Amendment is submitted in response to the Office Action dated December 20, 2001. In the Office Action, claims 16-35 are rejected. Claims 16-35 are pending.

SPECIFICATION

The abstract of the disclosure is objected to as being too concise. In response, Applicant has amended the abstract. Withdrawal of the objection is requested.

CLAIM OBJECTIONS

Claim 25 is objected to as failing to further limit the claim from which it depends. Applicant has canceled claim 25 thereby mooting the rejection.

35 USC 112

Claims 16-35 are rejected under 35 USC 112 first paragraph.

With regard to claims 16-25 and 34-35, the Office Action maintains that the last paragraph of claim 16 and the limitations of claim 35 "wherein the first expansion strut has a

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longitudinal axis offset from that of the second expansion column." are not disclosed in the specification for an unexpanded stent.

As to claims 16-25, support for the language is found in Fig. 2 of the specification. Figure 2 depicts a stent in an unexpanded state (see Fig. 2 and page 23, line 18). A marked-up copy of Fig 2 is submitted herewith to illustrate the support for the claim language. The stent of Fig. 2 includes a first expansion column with a first expansion strut pair (shown highlighted) with a first expansion strut which has a longitudinal axis offset from a longitudinal axis of the first expansion strut of the second expansion strut pair (shown highlighted) in the second expansion column. As such, the language in question is fully supported by the specification as filed.

Claim 34 includes the recitation that the first connecting strut is non-parallel to the first expansion strut of the first expansion pair and the second expansion strut of the first expansion strut pair. The recitation is also supported by Fig. 2 which shows an unexpanded stent with expansion struts which are non-parallel to the connectors. Claim 35 includes the recitation that the first expansion strut of the first expansion strut pair in the first expansion column has a longitudinal axis offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column. Again, this too is supported by Fig. 2 as filed.

Claims 20-22, 25 and 29-31 are said not to be supported in that sections of connectors are said not to be originally disclosed. Applicant notes that the sections recited in the claims are inherent to the connecting struts disclosed in the application as filed. Each connecting strut may be divided into three section, a first linear section, a second linear section and a third linear section. As such, the language in question is fully supported by the specification as filed.

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Applicant has canceled claim 22 as being duplicative of claim 21 thereby mooting the rejection as to claim 22. Also, as discussed above, claim 25 has been canceled thereby mooting the rejection as to claim 25.

With respect to claim 26, the Office Action states that lines 20-26 set forth a similar limitation to that set forth in claim 16 and discussed above. Lines 20-26 are supported by Fig. 2 for the same reasons as discussed above with respect to claim 16.

Further with respect to claim 26, the recitation of the ratio of connector struts to expansion struts is said not to be originally disclosed or contemplated. Applicant notes that the struts disclosed in the instant application inherently have a ratio of the number of expansion struts to the number of connecting struts and given the intended use of the stent (namely in a bodily vessel) the disclosed ratio provides sufficient stent flexibility to permit introduction of the stent through a selected vessel.

With regard to claim 28, the terminology of "substantially the same width" is said to constitute new matter. Applicant has deleted the term "substantially" from the claim. It is understood that the term "the same width" as used in the claim is intended to refer to the same width within manufacturing tolerances.

Claims 16-35 are rejected under 35 USC 112 second paragraph. The language of the claims is said to lack clear antecedent basis from the specification. The Office Action states that it is not clear what structure or element of the specification corresponds to the structure of or element of the claims. The Office Action points to, as an example, the "joining part", "proximal section" and "distal section". The expansion struts referred to in the claim correspond to struts 18, the joining struts correspond to the end portions and the connecting struts correspond to interconnecting elements 20. The terms proximal section and distal section would be understood by one of ordinary skill in the art to refer to the proximal and distal portions of the element in question.

As to claim 28, as discussed above, Applicant has deleted the term "substantial" from the claim.

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As to claim 34, the meaning of "non-parallel" is said not to be clear. Applicant maintains that the term "non-parallel" is clear and would be readily understood by one of ordinary skill in the art.

CLAIM REJECTIONS - 102

Claims 16-35 are rejected under 35 USC 102(e) as being anticipated by Schnepf-Pesch et al. (US 5,860,999). The Office Action states that "Figure 2 of Schnepf-Pesch reads on the claimed invention even though it is partially expanded because it could clearly be expanded more". Figure 1 of Schnepf-Pesch shows the Schnepf-Pesch stent in the non-expanded state. Claims 16-35 are directed to a stent in a non-expanded state. A partially expanded stent, by definition, cannot be a stent in a non-expanded state. By reading the term 'non-expanded state' to include a 'partially expanded state', the Office Action is impermissibly twisting the term to take on an opposite meaning from that which would be understood by one of ordinary skill in the art. Given the failure of the Fig. 1 stent to meet the claim limitations, the instant claims are patentable over Schnepf-Pesch.

Claim 34 is rejected under 35 USC 102(e) as being anticipated by Richter et al. (US 6,156,052). Claim 34 has been amended to recite that the proximal section of the connecting strut is coupled to the distal end of the first expansion strut pair at a location circumferentially offset from the location at which the distal section is coupled to the proximal end of the second expansion strut pair. This feature is not disclosed by Richter. In the Richter stent, the ends of the connectors are circumferentially aligned with one another.

Claims 26-33 are rejected under 35 USC 102(e) as anticipated by Richter or in the alternative under 35 USC 103 as obvious over Richter in view of Schnepf-Pesch.

As to the Richter rejection, claim 26 and claims dependent therefrom, directed to a stent in a non-expanded state, require that the first expansion strut of the first expansion strut pair in the first expansion column has a longitudinal axis that is parallel to and offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column, and the second expansion strut of the third expansion strut pair in the third expansion column has a longitudinal axis that is parallel to and offset from a longitudinal axis of the first expansion strut of the second expansion strut pair of the second expansion column, a

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plurality of the third expansion strut pair forming a third expansion column.

This feature is not present in Richter. The connectivity of the struts in the Richter stent is such that connected 'expansion strut pairs' in adjacent bands are longitudinally aligned with one another.

This feature is also not present in the combination of Richter and Schnepf-Pesch. Even if the number of connections between bands is decreased as in Schnepf-Pesch, the Schnepf-Pesch also discloses connected strut pairs in adjacent bands which are longitudinally aligned.

As such, claims 26-33 are patentable over Richter and over the combination of Richter and Schnepf-Pesch.

Claims 26-34 are rejected under 35 USC 102(b) as being anticipated by Palmaz (US 5102417). Claim 26 has been amended to recite that the first and second expansion struts of the first expansion strut column are joined at the distal end only and adjacent first expansion strut pairs of the first expansion strut column are connected at a proximal end. The first and second expansion struts of the second expansion strut column are joined at the proximal end only and adjacent first expansion strut pairs are connected at a distal end. The first and second expansion struts of the third expansion strut column are joined at the proximal end only and adjacent first expansion strut pairs of the third expansion strut column are connected at a distal end.

This feature is not disclosed by Palmaz. To the extent that the Palmaz stent may be considered to include expansion struts, the 'struts' are joined to adjacent 'struts' at both ends, unlike the structure recite in claim 26 and claims dependent therefrom.

Claim 33, dependent from claim 26, further recites that the first expansion strut of the first expansion strut pair in the first expansion column and the second expansion strut of the third expansion strut pair in the third expansion column have the same longitudinal axis. This feature is not found in the Palmaz stent. The connectivity of the Palmaz stent is such that the 'first expansion strut' in the first column and the third expansion strut pair of the third expansion column do not have the same longitudinal axis.

As such, claim 26 and claims dependent therefrom are patentable over Palmaz.

Claim 34 has been amended to recite that the first and second expansion struts of the first expansion strut column are joined at the distal end only and adjacent first expansion strut

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pairs of the first expansion strut column are connected at a proximal end. The first and second expansion struts of the second expansion strut column are joined at the proximal end only and adjacent first expansion strut pairs are connected at a distal end. This feature is not disclosed by Palmaz. To the extent that the Palmaz stent may be considered to include expansion struts, the 'struts' are joined to adjacent 'struts' at both ends, unlike the structure recite in claim 34 and claims dependent therefrom.

FORMALITIES

If an extension of time is required to make this response timely and no separate petition is enclosed, Applicant hereby petitions for an extension of time sufficient to make the response timely. In the event that this response requires the payment of government fees and payment is not enclosed, please charge Deposit Account No. 22-0350.

CONCLUSION

The pending claims are patentable over the cited art. Withdrawal of the objections and rejections is respectfully requested.

Respectfully submitted,

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In the Specification:

In the Abstract, on page 8 of the specification, please replace the paragraph beginning on line 5 with the following paragraph:

[Segmented articulatable stent of open structure comprised of end-connected struts making up the segments with angular interconnects between segments.] A stent in a non-expanded state includes a first expansion column and a second expansion column. The first expansion column comprises a plurality of expansion strut pairs. Each expansion strut pair includes a first expansion strut and a second expansion strut joined by a joining strut. The second expansion column comprises a plurality of expansion strut pairs. Each expansion strut pair includes a first expansion strut and a second expansion strut joined by a joining strut. The first and second expansion columns are connected via a first connecting strut column. The first connecting strut column comprises a plurality of first connecting struts. The first expansion strut of the first expansion strut pair in the first expansion column has a longitudinal axis offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column.

In the claims:

Please cancel claims 22 and 25 without prejudice or disclaimer.

Please amend claims 26, 28 and 34 as follows:

26 (Amended) A stent in a non-expanded state, comprising:

a first expansion strut pair including a first expansion strut positioned adjacent to a second expansion strut and a joining strut of the first expansion strut pair that couples the first and second expansion struts at a distal end of the first expansion strut pair, the first and second expansion struts joined at the distal end only, a plurality of the first expansion strut pair forming a first expansion column, adjacent first expansion strut pairs connected at a proximal end;

a second expansion strut pair including a first expansion strut positioned adjacent to a second expansion strut and a joining strut of the second expansion strut pair that couples the first and second expansion struts of the second expansion strut pair at a proximal end of the second expansion strut pair, the first and second expansion struts joined at the proximal end only, a plurality of the second expansion strut pair forming a second expansion column, adjacent second expansion strut pairs connected at a distal end;

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a first connecting strut including a first connecting strut proximal head section and a first connecting strut distal tail section, the head section being coupled to the distal end of the first expansion strut pair in the first expansion column and the tail section being coupled to the proximal end of the second expansion strut pair of the second expansion column, a plurality of the first connecting strut forming a first connecting strut column that couples the first expansion column to the second expansion column;

a third expansion strut pair including a first expansion strut positioned adjacent to a second expansion strut and a third joining strut of the third expansion strut pair that couples the first and second expansion struts at a proximal end of the third expansion strut pair, the first and second expansion struts joined at the proximal end only, a plurality of the second expansion strut pair forming a [second] third expansion column, adjacent third expansion strut pairs connected at a distal end;

a plurality of the third expansion strut pair forming a third expansion column, the first expansion strut of the first expansion strut pair in the first expansion column having a longitudinal axis that is parallel to and offset from a longitudinal axis of the first expansion strut of the second expansion strut pair in the second expansion column, and the second expansion strut of the third expansion strut pair in the third expansion column has a longitudinal axis that is parallel to and offset from a longitudinal axis of first expansion strut of the second expansion strut pair of the second expansion column, a plurality of the third expansion strut pair forming a third expansion column;

a second connecting strut including a proximal head section and a distal tail section, the head section being coupled to the distal end of the second expansion strut pair in the second expansion column and the tail section being coupled to the proximal end of the third expansion strut pair of the third expansion column, a plurality of the second connecting strut forming a second connecting strut column that couples the second expansion column to the third expansion column, and

wherein a ratio of a number of expansion struts to a number of connecting struts is selected to provide a sufficient stent flexibility to permit introduction of the stent through a selected blood vessel.

2b. (Amended) The stent of claim 26, wherein a width of a portion of the second expansion struts

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is [substantially] the same as a width of a portion of the first expansion struts.

34. (Amended) A stent in a non-expanded state, comprising:

a first expansion strut pair including a first expansion strut positioned adjacent to a second expansion strut and a joining strut of the first expansion strut pair that couples the first and second expansion struts at a distal end of the first expansion strut pair, the first and second expansion struts joined at the distal end only, a plurality of the first expansion strut pair forming a first expansion column, adjacent first expansion strut pairs connected at a proximal end;

a second expansion strut pair including a first expansion strut positioned adjacent to a second expansion strut and a joining strut of the second expansion strut pair that couples the first and second expansion struts of the second expansion strut pair at a proximal end of the second expansion strut pair, the first and second expansion struts joined at the proximal end only, a plurality of the second expansion strut pair forming a second expansion column, adjacent second expansion strut pairs connected at a distal end;

a first connecting strut including a first connecting strut proximal section, a first connecting strut distal section and a first connecting strut intermediate section, the first connecting strut proximal section being coupled to the distal end of the first expansion strut pair in the first expansion column and the first connecting strut distal section being coupled to the proximal end of the second expansion strut pair of the second expansion column, a plurality of the first connecting strut forming a first connecting strut column that couples the first expansion column to the second expansion column,

the first connecting strut being non-parallel to the first expansion strut of the first expansion pair and the second expansion strut of the first expansion strut pair, the proximal section coupled to the distal end of the first expansion strut pair at a location circumferentially offset from the location at which the distal section is coupled to the proximal end of the second expansion strut pair.

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Marked-Up Copy of Figure 2
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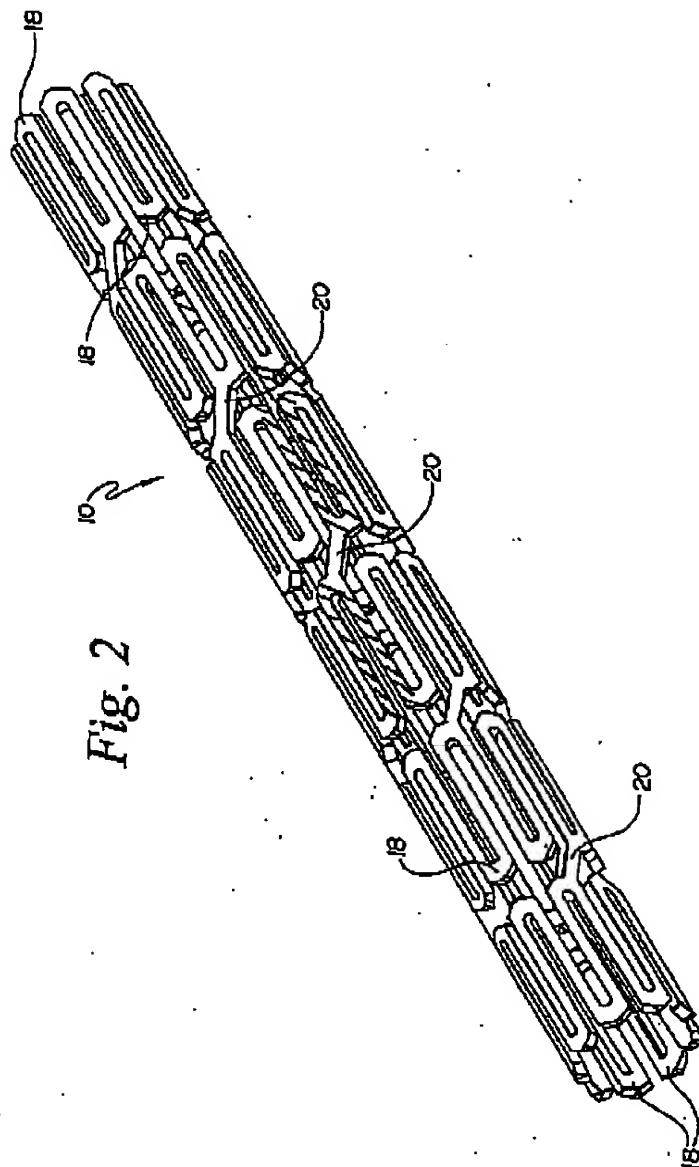


Fig. 2